



Bubble Mania: Inside-Out Bubbles

Goals of this lesson:

Youth will:

- Create their own wand and solution to make bubbles.
- Learn about the proportion and weight of air to liquid.
- Observe bubble movement, shape, and color.

What You Need to Know:

Time and Time again, science has shown us that first impressions can't be trusted. Consider the bubble: At first glance, it looks like the most fragile thing in the world. Yet under the right circumstances, it can be surprising difficult if not impossible to burst.

Materials Needed:

- 8 1/2 x 11 inch sheet of card stock
- Tape
- Scissors
- Bowl and spoon
- 1 cup plus 2 tablespoons water
- 2 tablespoons dishwashing liquid
- 2 tablespoons glycerin
- Plastic drinking straw



Learning Activity:

1. Create a cone shape out of your sheet of card stock. (using tape)
2. Create a bubble mixture by mixing together your water, dishwashing soap, and glycerin.
3. Dip the wide end of the cone into the bubble solution and hold it there for a few seconds to absorb the mixture. Tap off the excess liquid and then quickly dip the cone again. With the cone pointed toward the ground, gently blow a large bubble. Leave it attached to the end of the cone using our finger to cover the cone's tip.
4. Blow a large bubble as you did with the Unpoppable Bubble.
5. Dip the plastic drinking straw into the liquid (be sure to wet at least 2 inches of it). Insert the end of the straw into the bubble and gently blow to create one or more smaller bubbles inside it. Then watch. The interior bubbles will pass through the skin at the bottom of the large bubble and cling to the outside.

Coating the straw with solution allows you to insert it in the big bubble and blow smaller bubbles inside. But why don't those small bubbles stay there? Because their proportion of air to liquid is smaller than the bigger bubble's they are denser. Consequently, they sink and fall through the bottom of the bigger bubble. Still, they don't weigh quite enough to break free completely, so they simply hang in place.

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